



UNIVERSITI PUTRA MALAYSIA

**PREDICTORS OF SELF-REGULATED LEARNING IN SECONDARY
SMART SCHOOLS AND THE EFFECTIVENESS OF SELF-
MANAGEMENT TOOL IN IMPROVING SELF-REGULATED
LEARNING**

NG LEE YEN.

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By

NG LEE YEN

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in
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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Doctor of Philosophy

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July 2005

Chairman: Professor Kamariah Abu Bakar, Ph.D.
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The Smart School Project was implemented in 1999. It aims to systematically reinvent the teaching and learning processes in schools to produce not only knowledgeable and IT-literate students but also self-regulated learners. However, many teachers may not realize the factors related to self-regulated learning. There are needs to uncover these factors as this information may assists teachers in promoting self-regulation in smart schools. In addition, students may not be able to self-regulate their studies efficiently as they are accustomed to the conventional teacher-centered way of learning. Therefore, they need a Self-Management Tool that can guide them to employ self-regulated learning strategies constantly and practically. This tool may improve students' self-regulated learning skills and enables them to manage their studies more efficiently in smart schools. The objective of this study, thus, was twofold. It aimed to identify the predictors of self-regulated learning in secondary smart schools and also to examine the effectiveness of the Self-Management Tool in improving self-regulated learning.

A quantitative correlational research design was used to determine the predictors of self-regulated learning. The sample consisted of 409 students, from six randomly chosen smart schools. The data were collected through survey method. Multiple regression analysis showed that levels of IT-integration, student-teacher interactions, motivational beliefs, and self-regulative knowledge were significant predictors of self-regulated learning [$\Delta R^2 = .51$, $F(5, 403) = 84.48$, $p < .01$].

A quasi-experimental design was employed to test the effectiveness of the Self-Management Tool in improving self-regulated learning. The subjects were taken from a randomly chosen secondary smart school. A total of 61 students were involved; 30 students in the experimental group and 31 students in the control group. After three months of treatment, Analysis of Covariance (ANCOVA) revealed that there seemed to be no true difference in self-regulated learning between the two groups, [$F(1, 56) = 2.39$, $p > .05$]. However, eight weeks after that, the experimental group's self-regulated learning was found to be significantly higher than the control group, [$F(1, 55) = 31.04$, $p < .01$]. This suggests that the Self-Management Tool was effective in improving students' self-regulated learning.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

**PERAMAL PEMBELAJARAN ATURAN KENDIRI DI SEKOLAH-
SEKOLAH MENENGAH BESTARI DAN KEBERKESANAN ALAT
PENGURUSAN DIRI DALAM MENINGKATKAN
PEMBELAJARAN ATURAN KENDIRI**

Oleh

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Projek Sekolah Bestari dilaksanakan pada tahun 1999. Ia bermatlamat untuk merombak proses pengajaran dan pembelajaran di sekolah demi melahirkan pelajar yang bukan sahaja berpengetahuan dan celik teknologi maklumat tetapi juga berkemahiran dalam pembelajaran aturan sendiri. Namun, kebanyakan guru mungkin tidak mempunyai pengetahuan tentang faktor-faktor yang berkaitan dengan pembelajaran aturan sendiri. Faktor-faktor ini perlu dikenalpasti kerana maklumat ini boleh membantu guru meningkatkan pembelajaran aturan sendiri di sekolah bestari. Selain daripada itu, pelajar mungkin tidak mampu menguruskan pembelajaran mereka dengan cekap kerana mereka sudah biasa dengan kaedah pembelajaran yang berfokuskan guru. Justeru itu, pelajar memerlukan sebuah Alat Pengurusan Diri yang dapat membimbing mereka menggunakan strategi-strategi pembelajaran secara kerap dan praktikal. Alat tersebut mungkin boleh memperbaiki kemahiran pembelajaran aturan sendiri di kalangan pelajar dan membolehkan mereka menguruskan pelajaran dengan lebih efektif di sekolah bestari. Oleh itu, kajian tersebut mempunyai dua objektif; ia bertujuan untuk

mengenalpasti peramal pembelajaran aturan sendiri di sekolah menengah bestari dan juga menyelidiki keberkesanan Alat Pengurusan Diri dalam memperbaiki pembelajaran aturan sendiri.

Kajian berbentuk kuantitatif korelasi digunakan untuk mengenalpasti peramal-peramal pembelajaran aturan sendiri. Sampel kajian terdiri daripada 409 pelajar, dari enam buah sekolah bestari yang terpilih secara rawak. Data kajian dikumpul melalui kaedah soal selidik. Keputusan analisis regresi berganda menunjukkan bahawa tahap integrasi teknologi, interaksi antara pelajar dengan guru, kepercayaan motivasi dan pengetahuan tentang strategi pembelajaran merupakan peramal pembelajaran aturan sendiri yang signifikan [$\Delta R^2 = .51$, $F(5, 403) = 84.48$, $p < .01$].

Reka bentuk eksperimen-quasi digunakan untuk menguji keberkesanan Alat Pengurusan Diri dalam meningkatkan pembelajaran aturan sendiri. Subjek kajian diambil daripada sebuah sekolah menengah bestari yang terpilih secara rawak. Seramai 61 orang pelajar terlibat; 30 orang pelajar dalam kumpulan eksperimen dan 31 orang pelajar dalam kumpulan kawalan. *Analisis Kovarians* (ANCOVA) menunjukkan bahawa tiada perbezaan signifikan dalam pembelajaran aturan sendiri antara kedua-dua kumpulan tersebut selepas kajian tamat, [$F(1, 56) = 2.39$, $p > .05$]. Namun, lapan minggu selepas itu, kumpulan eksperimen didapati mempunyai pembelajaran aturan sendiri yang lebih tinggi secara signifikan daripada kumpulan kawalan, [$F(1, 55) = 31.04$, $p < .01$]. Ini menunjukkan bahawa Alat Pengurusan Diri berkesan dalam meningkatkan pembelajaran aturan sendiri di kalangan pelajar.

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I certify that an Examination Committee met on 28th July 2005 to conduct the final examination of Ng Lee Yen on her Doctor of Philosophy thesis entitled “Predictors of Self-Regulated Learning in Secondary Smart Schools and the Effectiveness of Self-Management Tool in Improving Self-Regulated Learning” in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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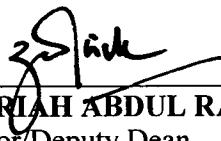
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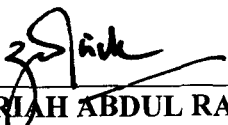
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DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.



NG LEE YEN
Date : 10-8-2005

TABLE OF CONTENTS

	Page
ABSTRACT	ii
ABSTRAK	iv
ACKNOWLEDGEMENTS	vi
APPROVAL	viii
DECLARATION	x
LIST OF TABLES	xiv
LIST OF FIGURES	xviii
 CHAPTER	
 I INTRODUCTION	 1
Background of the Study	1
The Importance of Self-Regulated Learning in Education	5
Self-Regulated Learning in Smart Schools	7
Social Cognitive Theory of Self-Regulated Learning	11
Statement of the Problem	16
Objectives of the Study	19
Research Questions	19
Hypotheses of the Study	20
Significance of the Study	22
Limitations of the Study	25
Definition of Terms	28
Self-Regulated Learning	28
Smart Schools	29
Student-Teacher Interaction	30
Motivational Beliefs	32
Self-Regulative Knowledge	35
Information Literacy	36
Attitudes towards Information Technology	36
Self-Management Tool	37
 II LITERATURE REVIEW	 39
Introduction	39
Self-Regulated Learning	39
Theories of Self-Regulated Learning	41
Social Cognitive Theory	41
Operant Theory	43
Phenomenological Theory	44
Volitional Theory	45
Vygotskian Theory	46
Cognitive Constructive Theory	47

Significance of Self-Regulation in Learning and Achievement	48
Factors Related to Self-Regulated Learning	52
Levels of Information Technology Integration	53
Student-Teacher Interactions	57
Motivational Beliefs	64
Self-Regulative Knowledge	86
Information Literacy	90
Attitudes towards Information Technology	97
Smart Schools	99
Information Technology in Smart Schools	100
Elements in Smart School Curriculum and Self-Regulated Learning	102
Summary of Literature Reviews	104
Theoretical Framework	108
 III RESEARCH METHODOLOGY	 114
Introduction	114
Quantitative Correlational Design (Survey)	115
Population	115
Samples for the Survey	116
Instrument	123
Pilot Study	155
Quasi-Experimental Design	178
Treatment	181
Validity of the Quasi-Experiment (Pretest -Posttest	198
Nonequivalent Control Group Design)	
Subjects	213
Self-Management Tool	216
Pilot Study	230
Statistical Analyses	239
Data Collection Procedure	249
 IV RESULTS	 253
Introduction	253
Predictors of Self-Regulated Learning in Smart Schools	254
Descriptive Analysis	254
Inferential Analysis	266
Correlation Analysis	266
Assumptions of Correlation Analysis	267
Correlational Analyses on Factors Related to Self-Regulated Learning	276
Multiple Regression Analysis	290
Assumptions of Multiple Regression Analysis	291
Multiple Regression Analyses on Predictors of Self-Regulated Learning	297

The Effectiveness of the Self-Management Tool in Improving Self-Regulated Learning in a Smart School	307
Descriptive Analysis	307
Inferential Analysis	309
Paired-Samples t-Test	310
Assumptions of Paired-Samples t-Test	310
Paired-Samples t-Test on the Experimental Group's Scores	318
Analysis of Covariance (ANCOVA)	321
Assumptions of Analysis of Covariance (ANCOVA)	323
ANCOVA on Pretest Mean of Self-Regulated Learning between the Experimental and Control Groups	329
ANCOVA on Posttest Mean of Self-Regulated Learning between the Experimental and Control Groups	333
ANCOVA on Delayed Posttest Mean of Self-Regulated Learning between the Experimental and Control Groups	337
Conclusions	342
V INTERPRETATIONS, IMPLICATIONS, AND RECOMMENDATIONNS	346
Introduction	346
Factors that Predict Self-Regulated Learning in Smart Schools	347
Factors Related to Self-Regulated Learning	363
Predictors of Self-Regulated Learning	393
Implications	399
The Effectiveness of the Self-Management Tool in Improving Self-Regulated Learning	410
Differences in the Experimental Group's Self Regulated Learning	414
Differences between Experimental and Control Group's Self-Regulated Learning	417
Implications	427
Recommendations for Future Research	433
Recommendations on Predictors of Self-Regulated Learning	433
Recommendations on the Self-Management Tool	437
BIBILOGRAPHY	440
APPENDICES	464
BIODATA OF THE AUTHOR	715

LIST OF TABLES

No.	Page
2.1. Elements in Smart School Curriculum	103
3.1 Details of the Questionnaire	124
3.2 Learning Strategies in MSLQ	126
3.3 Reliability of the Learning Strategies Subscales	135
3.4 Content Specification for Student-Teacher Interactions Scale	137
3.5 Reliability of the Motivational Subscales	145
3.6 Content Specification for Self-Regulative Knowledge Scale	147
3.7 Content Specification for Information Literacy Scale	150
3.8 Content Specification for Attitudes Towards IT Scale	152
3.9 Results for the Extraction of Common Factors in Student-Teacher Interactions Scale	161
3.10 Factor Loading Matrix using Principal Component Analysis with Varimax Rotation on Factors in Student-Teacher Interaction Scale	163
3.11 Results for the Extraction of Common Factors in Self-Regulative Knowledge Scale	165
3.12 Factor Loading Matrix using Principal Component Analysis with Varimax Rotation on Factors in Self-Regulative Knowledge Scale	167
3.13 Results for the Extraction of Common Factors in Information Literacy Scale	171
3.14 Factor Loading Matrix using Principal Component Analysis with Varimax Rotation on Factors in Information Literacy Scale	173
3.15 Reliability of the Instruments	175
3.16 Reliability of the Learning Strategies Subscales	176
3.17 Reliability of the Motivation Subscales	177

3.18	Lesson Plan (outline) for Self-Management Tool (Part A: Information Management Tool)	188
3.19	Lesson Plan (outline) for the Self-Management Tool (Part B: Personal Information Tool)	191
3.20	Checklist for Conducting the Treatment	193
3.21	Treatment Schedule	196
3.22	Sources of Internal Invalidity for Pretest Posttest Nonequivalent Control Group Design	200
3.23	Sources of External Invalidity for Pretest Posttest Nonequivalent Control Group Design	210
3.24	Details about the Self-Management Tool	217
3.25	Function of Boolean Signs	221
3.26	Sample Items in Analyzing Tool	222
3.27	Self-Regulated Learning Strategies in the Information- Management Tool	225
3.28	Example of the Monthly Schedule	227
3.29	Example of the Priority List	228
3.30	Strategies Embedded in 'Tips on How to Improve Your Achievement	229
3.31	Guidelines to Interpret the Strength of Correlation (r)	241
3.32	Dummy Variables for Levels of IT-Integration	242
3.33	Values of Factor Loadings	246
3.34	Recommended Alpha Range	247
3.35	Summary of Statistical Analyses	247
4.1	Means and Standard Deviations of the Learning Strategies Scale	256
4.2	Distributions of Samples According to Levels of IT-integration in Smart Schools	258

4.3	Means and Standard Deviations of the Student-Teacher Interactions Scale	259
4.4	Means and Standard Deviations of the Motivation Scale	261
4.5	Means and Standard Deviations of the Self-Regulative Knowledge Scale	263
4.6	Means and Standard Deviations of Information Literacy Scale	264
4.7	Means and Standard Deviations of Attitudes towards IT Scale	265
4.8	Correlation Analyses on Self-Regulated Learning and Levels of IT-integration	278
4.9	Correlation Analyses on Self-Regulated Learning and Student-Teacher Interactions	279
4.10	Correlation Analyses on Self-Regulated Learning and Motivational Beliefs	282
4.11	Correlation Analyses on Self-Regulated Learning and Self-Regulative Knowledge	287
4.12	Correlation Analyses on Self-Regulated Learning and Information Literacy	288
4.13	Correlation Analyses on Self-Regulated Learning and Attitudes towards IT	289
4.14	Correlation Matrix of Factors Related to Self-Regulated Learning	295
4.15	Tolerance and Variance-Inflation Factor of Independent Variables (VIF)	296
4.16	Multiple Regression on Predictors of Self-Regulated Learning	298
4.17	Standardized Beta Coefficient of Predictors of Self-Regulated Learning	300
4.18	Standardized beta coefficient of Environmental and Personal Predictors of Self-Regulated Learning	305
4.19	Means and Standard Deviations according to Group in Pretest, Posttest, and Delayed Posttest	308

4.20	Paired-Samples t-Test on Experimental Group's Pretest and Posttest Mean of Self-Regulated Learning	318
4.21	Paired-Sample t-Test on Experimental Group's Posttest and Delayed Posttest Mean of Self-Regulated Learning	320
4.22	Correlation of Extraneous Variables and Self-Regulated Learning	324
4.23	Test of Homogeneity of Variance for Pretest, Posttest, and Delayed Posttest Self-Regulated Learning	328
4.24	ANCOVA on Pretest Mean of Self-Regulated Learning between Experimental and Control Groups	330
4.25	ANCOVA on Posttest Mean of Self-Regulated Learning between Experimental and Control Groups	334
4.26	ANCOVA on Delayed Posttest Mean of Self-Regulated Learning between Experimental and Control Groups	338
4.27	Results of Hypotheses Testing on Predictors of Self-Regulated Learning	342
4.28	Results of Hypotheses Testing on the Effectiveness of Self-Management Tool	345

LIST OF FIGURES

No.		Page
1.1	The Differences between Conventional and Smart Schools Teaching-Learning (Abdul Razak Hussain, Nor Hafeizah Hassan, & Shahrin Shahrin, 2001)	7
1.2	Self-learning in Smart Schools (Curriculum Development Center, 2002)	8
1.3	Factors that influence Self-Regulated Learning based on Social Cognitive Theory	11
2.1	Student-Teacher Interactions	63
2.2	Motivational Beliefs Model (Adapted from Pintrich & Roeser, 1994)	68
2.3	Self-Regulative Knowledge	90
2.4	Information Literacy	92
2.5	Attitudes towards IT	97
2.6	Theoretical Framework on the Predictors of Self-Regulated Learning in a Smart School	110
2.7	Theoretical Framework on the Effectiveness of Self-Management Tool in Improving Self-Regulated Learning in a Smart School	112
3.1	Cluster Sampling	117
3.2	Scree Plot of Factors in Student-Teacher Interactions Scale	161
3.3	Scree Plot of Factors in Self-Regulative Knowledge Scale	166
3.4	Scree Plot of Factors in Information Literacy Scale	172
3.5	Research Design Model to Test the Effectiveness of Self-Management Tool	179
3.6	Slides Presentation of The Self-Management Tool	186
3.7	Selection of Subjects	214

4.1	Histogram of Self-Regulated Learning Scores	268
4.2	Stem-and-Leaf Plot of Self-Regulated Learning Scores	269
4.3	Boxplot of Self-Regulated Learning Scores	270
4.4	Normal Probability Plot of Self-Regulated Learning Scores	271
4.5	Detrended Normal Plot of Self-Regulated Learning Scores	272
4.6	Scatterplot of Self-Regulated Learning and Student-Teacher Interactions Scores	273
4.7	Scatterplot of Self-Regulated Learning and Motivational Beliefs	274
4.8	Scatterplot of Self-Regulated Learning and Self-Regulative Knowledge	274
4.9	Scatterplot of Self-Regulated Learning and Information Literacy	275
4.10	Scatterplot of Self-Regulated Learning and Attitudes towards IT	275
4.11	Normal P-P Plot of Regression Standardized Residuals for Self-Regulated Learning Scores	292
4.12	Residual Scatterplots of Self-Regulated Learning Scores	293
4.13	Predictors of Self-Regulated Learning in Smart Schools	302
4.14	The Environmental and Personal Predictors of Self-Regulated Learning	306
4.15	Histogram of Experimental Group's Prettest Self-Regulated Learning Scores	311
4.16	Histogram of Control Group's Prettest Self-Regulated Learning Scores	311
4.17	Histogram of Experimental Group's Posttest Self-Regulated Learning Scores	312
4.18	Histogram of Control Group's Posttest Self-Regulated Learning Scores	313
4.19	Histogram of Experimental Group's Delayed Posttest Self-Regulated Learning Scores	314

4.20	Histogram of Control Group's Delayed Posttest Self-Regulated Learning Scores	314
4.21	Boxplots of Experimental Group's Pretest, Posttest and Delayed Posttest Self-Regulated Learning Scores	315
4.22	Boxplots of Control Group's Pretest, Posttest and Delayed Posttest Self-Regulated Learning Scores	316
4.23	Scatterplot of Experimental Group's Pretest Self-Regulated Learning Scores and Motivational Beliefs Scores	326
4.24	Scatterplot of Control Group's Pretest Self-Regulated Learning Scores and Motivational Beliefs Scores	326
4.25	Scatterplot of Experimental Group's Pretest Self-Regulated Learning Scores and Self-Regulative Knowledge Scores	327
4.26	Scatterplot of Control Group's Pretest Self-Regulated Learning Scores and Self-Regulative Knowledge Scores	327
4.27	Scatterplot of Experimental and Control Groups' Self-Regulative Knowledge and Pretest Scores	331
4.28	Scatterplot of Experimental and Control Groups' Motivational Beliefs and Pretest Scores	332
4.29	Scatterplot of Experimental and Control Groups' Self-Regulative Knowledge and Posttest Scores	336
4.30	Scatterplot of Experimental and Control Groups' Pretest and Posttest Scores	337
4.31	Scatterplot of Experimental and Control Groups' Posttest and Delayed Posttest Scores	340
4.32	Scatterplot of Experimental and Control Groups' Self-Regulative Knowledge and Delayed Posttest Scores	341

CHAPTER I

INTRODUCTION

Background of the Study

Self-regulation is one of the most intriguing areas in human studies because people are always fascinated with the understanding of how individuals seek to control their own physical, behavioral and psychological qualities. In order to understand this psychological construct, numerous studies have been carried out by researchers in various fields ranging from health care (Walshe, 2003; Richard, Reinhardt & Elias, 2002), management (Dawn & Boyce, 2003) to education (Wolters, 2003; Benson, 2001). Research on self-regulation is currently focusing on education pertaining to learning and academic achievement processes.

Studies on self-regulated learning have grown out of more general efforts to investigate students' learning. Research during the past 30 years on students' learning has progressively included emphases on cognitive strategies, metacognition, motivation, task engagement, and student-centered learning. Self-regulated learning emerged as a construct that encompassed these various aspects of academic learning and provided more holistic view of the learning strategies, motivation and knowledge that students acquire.

Generally, self-regulated learning describes how learners metacognitively, motivationally and behaviorally promote their own academic achievement (Zimmerman, 1986). Metacognitively, self-regulated learners plan, organize, self-monitor, and self-evaluate at various stages of the learning processes. Motivationally, self-regulated learners perceived themselves as competent, self-efficacious, autonomous and they work hard to achieve their academic goals. Behaviorally, self-regulated learners select, structure, and even create environments that optimize learning. According to researchers, self-regulated learning is reflected by the usage of self-regulated learning strategies. These strategies include rehearsal, elaboration, organization, critical thinking, metacognitive self-regulation, time and environment management, effort regulation, peer learning as well as help seeking (Pintrich, Smith, Gracia, & McKeachie, 1991).

Self-regulated learners are characterized as active learners who efficiently manage their own learning. They start by analyzing task requirements, defining performance criteria, and setting learning goals. These steps are critical because learners make decisions about how to self-regulate learning based on perceived task demands. Next, self-regulated learners identify strategies likely to accomplish their objectives. This entails selecting and adapting strategies to match task demands. Finally, self-regulated learners implement strategies, monitor outcomes associated with strategy use, make judgments about task performance and adjust strategies based on the success of their efforts.

Self-regulated learning is a vital skill in IT-integrated learning environment. Its importance became evident after the recent explosion of Information Technology (IT). There is now substantial body of research showing that learning in IT-integrated environment is an active and constructive process (De Corte, 1990). Students are not passive receptacles of information, but actively construct their own knowledge and skills through interactions with the environments. In such settings, students are required to complete many assignments, projects, and folios independently, hence competency in self-regulated learning plays an important role in determining the success of learning.

IT can promote self-regulated learning as it provides students with tools such as personal computers, educational software, and Internet that support and enhance self-learning. Learning became more student-centered, independent and exploratory in nature. Kenning (1996) for example, asserts that the Internet is strongly supportive of self-regulated learning as learners can study whenever they want using a potentially unlimited range of authentic materials. They can also converse quite easily with experts in various fields or seek information from other students around the world. In this information age, no doubt, the Internet is an essential source of information for students. While it has always been imperative for students to learn how to select, organize, and evaluate information, it is even more so now. About 35,000 websites are created every four hours, making the Internet a vast, yet potentially confusing resource for students ("Guide Students to Use the Net," 2003). Therefore, teachers have to teach students how to manage information, which is obtained from